

**Remarks**

The applicants note with appreciation the Examiner's tacit indication that the claims are allowable over the prior art of record.

**I. CLAIM REJECTIONS UNDER 35 USC § 112**

Claims 1-58 are rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicants regards as the invention.

*Claim 1*

The Examiner states that the claimed output from the block length decision circuit in lines 6-7 is not used by any of the elements. To remedy the defect noted by the Examiner, the applicants have amended claim 1 at new lines 9-10 to recite that the block length decision means is for determining a division of the frequency range signal into blocks to provide a block length decision signal indicating a block length for each of the blocks. The applicants have also amended claim 1 at new lines 11-17 to recite that the block floating processing means operates block floating processing means in response to the block length decision signal from the block length decision means, and is for applying block floating processing to the blocks of the frequency range signal which have a block length indicated by the block length decision signal.

The Examiner asks whether the "frequency range signals" recited in claim 1, lines 7 and 9, the same as the once in line 4, and suggests that, if so, the ones in lines 7 and 9, should be written as "said frequency range signal" and "said each frequency range signal", respectively. To remedy the defect noted by the Examiner, the applicants have amended claim 1 at new lines 3-6 to recite that the band division filter means is for dividing the digital input signal in frequency into plural signals, that each of the plural signals is in a respective one of plural frequency ranges, and that the plural signals include a frequency range signal in one of the plural frequency

ranges. The applicants have also amended the references to "each frequency range signal" at new lines 8 and 13, to --the frequency range signal--.

The Examiner next notes that claim 1 lacks a means for generating the index value. The applicants respectfully submit that the requirements of 35 USC § 112, second paragraph, do not require them to recite a means for generating the index in claim 1. The index is recited in claim 1 simply to indicate that the block length decision means and the block floating processing means operate in response to a common parameter, namely, the index. However, the index need not necessarily be generated by the claimed apparatus. For example, the index could alternatively be received by the apparatus. Accordingly, the applicants respectfully submit to recite a means for generating the index value would unnecessarily narrow the scope of the claim.

The Examiner states that there is no claimed limitation/limitations to define a relationship between the frequency range signal and that of the index in order for the claimed block length decision circuit and the block floating processing means to generate the claimed outputs. The applicants respectfully submit that, with the amendments new lines 3-6, and the changes of "each frequency range signal" to --the frequency range signal--, claim 1 now defines a sufficient relationship between the index and the frequency range signal. The applicants respectfully submit that the requirements of 35 USC § 112, second paragraph, do not require them to define the way in which the index is used by the block length decision means and the block floating processing means to generate their respective outputs.

*Claims 2, 26, and 27*

The Examiner notes that a problem exists with respect to reference to "the frequency range signal" recited in line 4 of claim 1 and the reference to "each frequency range signal" in claim 2, line 3, claim 27, line 2, and claim 26, lines 7 and 9. The applicants respectfully submit that the amendment to claim 1 at new lines 3-6, and changes of "each frequency

range signal" to --the frequency range signal-- in the places in claims 2, 26 and 27 indicated by the Examiner remedy the defects noted by the Examiner.

*Claim 2*

The Examiner states that the word, "an", in line 5, should be deleted. The applicants have amended claim 2 to delete the word "an" at new line 4.

*Claim 26*

The Examiner states that claim 26 lacks a means for generating the frequency range signal in time. The Examiner notes that, as claimed, "the frequency range signal in time" is not the same as the "frequency range signal" recited in claim 1. The undersigned regrets the confusion caused by his use of the adverbial phrase "in time" in clauses such as "[sub] dividing the frequency range signal in time" in claim 26 and in many of the other claims. In the claims of the present application, the undersigned has consistently used the phrase "in time" as an adverbial phrase to modify the verb in the clause. For example, in claim 26, the phrase "in time" is an adverbial phrase that modifies the verb "subdividing," i.e., the adverbial phrase "in time" describes how the subdividing is performed.

However, it appears that the Examiner has not recognized the phrase "in time" as an adverbial phrase belonging to the verb of the clause, but has instead taken the phrase "in time" to be part of the noun phrase "the frequency range signal in time." As a result, a distinction has been drawn between "the frequency range signal" and "the frequency range signal in time," even though the noun phrase "the frequency range signal in time" lacks any antecedent basis, whereas the noun phrase "frequency range signal" has a clear antecedent basis.

The Examiner has noted similar problems with the use of the adverbial phrase "in time" in many of the other claims. To remedy these defects, the applicants have deleted the adverbial phrase "in time" from claim 26 and from the other claims in which is used. The applicants

respectfully submit that, with the adverbial phrase "in time" removed, the phrase "frequency range signal" in claim 26, new lines 6-7, conforms with the phrase "frequency range signal" first introduced in claim 1, new line 6.

The Examiner further states that claim 26 also lacks a means for generating the plural sub blocks. The applicants have amended claim 26 at new line 3 to recite such a means.

The Examiner states that the claimed "sub blocks constituting the block" recited in claim 26, line 11, is not understood from the claim. To remedy this defect, the applicants have amended claim 26 at new lines 11-13 to recite that the block length decision means determines the division of the frequency range signal into blocks by comparing the indices of consecutive ones of the sub blocks of the frequency range signal to determine a number of the consecutive ones of the sub blocks to constitute each of the blocks. The applicants have also amended claim 26 at new lines 15-18 to recite that the block floating processing means applies block floating processing to the blocks of the frequency range signal . . . using, for each one of the blocks, a block floating coefficient calculated from the indices of the sub blocks constituting the one of the blocks. The applicants respectfully submit that the amendments to claim 26 clarify how the sub blocks constitute the blocks.

#### *Claim 27*

The Examiner states that "the sub block" recited at line 5 lacks a clear antecedent basis. The Examiner notes that there are a plural sub blocks claimed in claim 26 on which claim 27 depends. The applicants have amended claim 27 at new lines 4-5 to recite "the sub blocks," the term that is first introduced in claim 26, new line 3.

#### *Claims 1, 2, and 26-29*

The Examiner states: 'It confusing from the claims, claims 1,2 and 26-28, that the index generating means and block length decision means are responsive to the frequency range signal [in time] at one time and the

frequency range signal at other times. Are the frequency range signal in time and the frequency range signal recited in claim 28, the same as the ones in claim 26? If so, the ones in claim 28 should be written as "said frequency range signal in time" and "said frequency range signal", respectively. The same is true with the "frequency range signal in time" and "frequency range signal" in claim 29.' The applicants have amended the claims as indicated in the discussion of claim 26 to eliminate the adverbial phrase "in time," and the confusion resulting from the use of the term.

*Claims 28 and 29*

The Examiner states that there is no claimed output from the means for comparing recited in claim 28, line 8-9, and asks what is outputted from the means for comparing in order for the block defining means to be responsive to and function accordingly. The Examiner states that the same is true with the comparing means recited in claim 29. To remedy these defects, the applicants have amended claim 28 at new lines 9-10, and claim 29 at new line 7, to recite that the comparison means generates a comparison result to which the block defining means is responsive.

The Examiner next states that "the indices of the first sub block and the second sub block" recited in claim 29, lines 5-6, lacks a clear antecedent basis, and also that claim 29 lacks a means for generating the indices of the first and second sub blocks." The applicants note that claim 26 recites a means for generating an index for each of the sub blocks obtained by subdividing the frequency range signal. The applicants have amended claim 29 at new lines 4-5 so that it no longer recites that dividing the frame into first sub block and a second sub block is an additional function of the means for subdividing the frequency range signal. Therefore, in claim 29 as now amended, the first sub block and the second sub block are simply ones of the sub blocks generated by the means for subdividing the frequency range signal into sub blocks recited in claim 26 as now amended. Accordingly, the indices of the first sub block and the second sub block now

have a clear antecedent basis, because of the generation of indices by the index generating means recited in claim 26. Moreover, since claim 26 recites the means for generating an index for each of the sub blocks obtained by subdividing the frequency range signal, no additional means for generating the indices of the first sub block and the second sub block need be recited in claim 29.

The Examiner finally states that the claimed block defining means should be clearly recited as being responsive to the means for comparing. To remedy this defect, the applicants have amended claim 29 at new line 7 to recite that the comparing means is for providing a comparison result, and at new line 11 to recite that the block defining means operates in response to the comparison result generated by the comparing means.

*Claim 30*

The Examiner states that "the indices of the first half sub block and the second half sub block" recited at lines 6-7, lacks a clear antecedent basis. The applicants respectfully notes that claim 26 recites a means for generating an index for each of the sub blocks obtained by subdividing the frequency range signal. The applicants have amended claim 30 at new lines 5-6 so that it no longer recites that dividing the frame into first sub block and a second sub block is an additional function of the means for subdividing the frequency range signal. Therefore, in claim 30 as now amended, the first half sub block and the second half sub block are simply ones of the sub blocks generated by the means for subdividing the frequency range signal into sub blocks recited in claim 26 as now amended. Accordingly, the indices of the first half sub block and the second half sub block now have a clear antecedent basis, because the index generating means recited in claim 26 is recited as generating an index for each of the sub blocks.

The Examiner also states that the claimed "block defining means" recited at lines 10-19 should be clearly recited as being responsive to the means for comparing. The applicants have amended claim 30 at new lines

11 and 14 to recite that the comparing means is for providing a first comparison result and a second comparison result, and at new lines 20 and 26 to recite that the block defining means operates in response to the first comparison result and the second comparison result from the comparing means.

*Claim 3*

The Examiner states that it is not clear in claim 3 whether the orthogonal transform means is responsive to the band division filter means or the block floating processing means. To remedy this defect, the applicants have amended claim 3 at new lines 7-9 to recite that the block floating processing means is for applying block floating processing to blocks of the frequency range signal to provide a block floating processed frequency range signal, and at new lines 10-12 to recite that the orthogonal transform means is for orthogonally transforming blocks of the block floating processed frequency range signal to provide plural spectral coefficients. The applicants respectfully submit that this amendment makes it clear that the orthogonal transform means orthogonally transforms the block floating processed frequency range signal from the block floating processing means.

The Examiner asks whether the "frequency range signal divided in time into blocks" in lines 7-8 the same as the "frequency range signal in each of plural frequency ranges" recited in lines 4-5. The Examiner suggests that, if so, the ones in lines 7-8, should be clearly recited as being the ones in lines 4-5, otherwise, claim 3 lacks a means for generating the frequency range signal divided in time into blocks in order the block floating processing means to function as claimed. As discussed above with respect to claim 26, the applicants have amended claim 3 at new line 9 to remove the adverbial phrase "in time."

The Examiner notes that "the critical bands" recited in lines 27-28 lacks a clear antecedent basis. The applicants have amended claim 3 and several others of the claims in which the term "the critical bands" appears to

remove the word "critical." The antecedent basis for the term "the bands" in new line 16 is introduced at new line 14 of claim 3.

The Examiner asks what the condition is for setting a flag, and whether the flag is set in response to the compared minimum audible level. The Examiner suggests that, if so, the flag setting should be clearly recited as being set in response to minimum audible level. The applicants note that a flag is set is set for each of the bands in which the comparing means indicates that the minimum audible level is higher than the allowable noise level. The applicants have amended claim 3 at new lines 20-23 to clarify this. The applicants have also corrected an error in the last line of claim 3, where the means for selecting was recited as selecting the minimum audible level as the "allowed" noise level. This should have read the "allowable" noise level, to conform with the term first introduced at new line 16.

The Examiner asks whether a "," be added before "wherein" in claim 3, line 28, and whether the "wherein" in claim 3, line 31, be replaced by --where--. The applicants have amended claim 3 at new lines 22 and 24 to replace "wherein" by the phrase "in which," which means the same as "wherein" but is a more modern usage. When this substitution is made, it is clear that a comma is not required after "in which" at old line 28, and that it would be inappropriate to change "in which" to "where" in old line 31.

#### *Claim 31*

The Examiner states that claim 31 lacks a means to identify the claimed critical band from the orthogonally transformed plural bands. The applicants have amended claim 31 at new line 2 to change "one critical band" to "one of the bands." The adaptive bit allocation means recited in claim 3 divides the spectral coefficients into "bands."

#### *Claim 6*

The Examiner states that "each frequency range signal in time" recited at lines 21 and 29 should be written as "said each frequency range



signal in time", see claim 3, lines 7-8. The applicants have changed "each frequency range signal in time" to "the frequency range signal" to accord with "a frequency range signal" recited in claim 3, new line 6.

The Examiner states that claim 6 lacks a means for generating the index value. The applicants respectfully submit that, in claim 6, no means for generating the index need be recited. The index is recited in claim 6 simply to indicate that the block length decision means and the block floating processing means operate in response to a common parameter, namely, the index. However, the index need not necessarily be generated by the claimed apparatus. For example, the index could alternatively be received by the apparatus. Accordingly, the applicants respectfully submit to recite a means for generating the index value would unnecessarily narrow the scope of the claim.

The Examiner states that there is no claimed limitation/limitations to define a relationship between the frequency range signal and that of the index in order for the claimed block length decision circuit and the block floating processing means to generate the claimed outputs. The applicants respectfully submit that, with the amendments to claim 3 starting at new line 4, and the changes of "each frequency range signal" to --the frequency range signal-- in claims 3 and 6, claim 6 now defines the relationship between the index and the frequency range signal. The applicants respectfully submit that the requirements of 35 USC § 112, second paragraph, do not require them to define the way in which the index is used by the block length decision means and the block floating processing means to generate their respective outputs.

#### *Claim 32*

The Examiner suggests that "each block floating processed block" recited at line 8 should be written as "said each block floating processed block." The applicants have amended the claim at new line 9 to recite "each

--of the-- block floating processed block--s--" to accord with "block floating processed blocks" introduced at new line 8.

*Claim 35*

The Examiner states that "digital input signal in time" lacks a clear antecedent basis, and asks whether it is the same digital signal recited in claim 32. To remedy this defect, the applicants have amended the claim to delete "in time" so that "the digital input signal" at new line 3 accords with "a digital input signal" recited in claim 32 at new line 1.

*Claims 36 and 37*

The Examiner states that "the step for calculating an index" recited at line 4 lacks a clear antecedent basis, and asks whether it is the same as the step for generating recited in claim 32 and 35? The Examiner states that the same is true with "the step for calculating" recited in claim 37. The applicants have amended claim 36, new line 4, and claim 37, new line 2, to recite "the step of generating" to accord with the step of generating an index recited in claim 32 at new line 8.

*Claim 35*

The Examiner states that "the step of comparing the indices" recited at line 5 should be written as "a step for comparing the indices." The applicants have amended the claim at new line 5 to recite "a step of comparing the indices." The amended claim recites "a step of" instead of "a step for" to maintain uniformity with claim 32 in which each the steps is recited as a "step of."

*Claims 37 and 38*

The Examiner states that "the input signal in time" recited in claim 37, line 7 and claim 38, line 2, lacks a clear antecedent basis. The applicants have amended claim 37 at new line 3, and claim 38 at new lines 2

and 4 to delete the adverbial phrase "in time." These references to "the digital input signal" now accord to "a digital input signal" recited in claim 32, new line 1.

*Claim 42*

The Examiner states that "each frequency range signal" recited at line 5 should be written as "said each frequency range signal" to accord with line 2. The applicants have amended the claim at new lines 3-5 to recite "a frequency range signal" (line 4), and have amended the claim at new lines 9 and 12 to recite "the frequency range signal."

*Claim 43*

The Examiner states that the last clause starting "--wherein the step--" starting at lines 13-15, is not understood, and does not make sense. The applicants have amended the claim at new lines 12-15 to recite a step of selecting the minimum audible level as the allowable noise level in each of the bands for which the step of comparing determines that the minimum audible level is higher than the allowable noise level. In other words, the minimum audible level is adopted as the allowable noise level for those of the bands in which the comparing step determines that minimum audible level is higher than the allowable noise level. The applicants have also corrected a terminological inconsistency in new line 6 of claim 43, where the step of adaptively allocating a number of quantizing bits was recited as being performed in response to an "allowed" noise level. This should have read an --allowable-- noise level. This makes line 6 consistent with the occurrences of "allowable noise level" at new lines 10, 12, and 14.

*Claim 45*

The Examiner states that "the step of orthogonally transforming" recited in claim 43, lines 2-3, should be written as "a step of orthogonally transforming." The applicants assume that the Examiner is referring to "the

step of orthogonally transforming" recited in claim 45, lines 2-3, and have amended claim 45 as suggested by the Examiner.

*Claim 46*

The Examiner states that "the method provides a compressed signal" recited at lines 1-2 should be written as "the method for compressing the digital input signal." The applicants respectfully note that, unless they have misunderstood the Examiner's suggestion, lines 1 and 2 of the claim would read: 'The method of claims 43 or 44, wherein the method for compressing the digital input signal including a target number of bits, and wherein . . . .' The applicants respectfully submit that this does not make sense. The applicants have therefore amended the claim at lines 1 and 2 so that it reads: 'The method of claims 43 or 44, wherein the method is for compressing the digital input signal to provide a compressed signal including a target number of bits, and wherein: . . . .'

The Examiner states that "the spectral coefficients" recited at lines 3-4 should be written as "the spectral coefficients in each of the bands." The Examiner states that, otherwise, the claim reads as if the step of adaptively allocating in claim 46 is responsive to the step for deriving rather than the step for dividing, see claim 43. The applicants respectfully note that the "actual number of bits" relates to the number of bits allocated to *all* the bands. It would therefore be inaccurate to amend the claim as suggested by the Examiner. The applicants have amended the claim at new lines 4-6 to state that, in the step of adaptively allocating a number of quantizing bits, the number of bits adaptively allocated is an actual number of bits.

*Claim 48*

The Examiner states that "the steps of" recited at line 2 should be written as "steps of." The applicants have amended the claim as suggested by the Examiner.

The Examiner states that "the digital input signal in time" recited at line 3 lacks a clear antecedent basis. As discussed above with reference to claim 26, the applicants have amended the claim at new line 3 to delete the adverbial phrase "in time." At line 3, the claim recites "the digital input signal" in accordance with the term introduced at line 1 of claim 43.

*Claim 54*

The Examiner states that "the spectral coefficients in the band" recited at line 4 should be written as "the spectral coefficients in the bands." The applicants respectfully note that "in the band" refers to the divided band, and not to the remainder of the bands. The applicants have amended the claim at lines 3-6 to recite "plural quantized spectral coefficients divided by frequency into bands, the bands including a divided band in which the spectral coefficients therein are further divided by frequency into sub bands," to clarify the reference to the divided band.

The Examiner states that the claimed limitation starting "--,and, for each----" at lines 6-9 is not understood nor it is a complete sentence. The Examiner states that the reception of the compressed signal structure with respect to band sub band and spectral coefficients in the band recited in the preamble of claim is not understood. The steps for setting, determining and using in claims 54-58, are confusing with respect to the bands, band and sub band.

The applicants have thoroughly amended the claim to simplify it and to clarify the points that were unclear to the Examiner. In particular, the applicants have amended the claim to indicate clearly the applicability of the recited steps to the divided band and to the remaining bands.

Finally, the applicants have amended the claim at lines 15-23 to correct the allowed/allowable inconsistency referred to above.

*Claim 11*

The Examiner states that "the digital input signal in time" recited at line 2 lacks a clear antecedent basis. As discussed above with reference to claim 26, the applicants have amended claim 11 at new line 3 to delete the adverbial phrase "in time." "The digital input signal" recited at new line 3 now accords with "a digital input signal" recited in claim 8, line 1.

*Claims 8-24, 17, 22-24, 25-50, and 32-42*

The Examiner reminds the applicants to claim properly the "each frequency signal in time and each frequency signal in time" in claims 17, and 25-50 and "the digital input signal in time and digital signal" in claims 8-24. The Examiner states that it is confusing throughout the claims that the same signal is claimed as "each frequency signal" at one time, and "each frequency signal in time" at other time. The same is true with the "digital signal in time" and the digital signal" recited in claims 22-24 and 32-42. The applicants have amended the captioned claims to delete all instances of the adverbial phrase "in time" to remove the inconsistencies indicated by the Examiner.

The applicants respectfully submit that the claims, as now amended, comply with the requirements of 35 USC § 112, second paragraph. A paper showing the active claims as currently amended is enclosed for the Examiner's convenience.

**II. APPARENT DOUBLE PATENTING REJECTION**

The Examiner states that the applicants should be aware that the parent application, serial no. 07/857,980, has been issued as U.S. patent number 5,285,476, and that, therefore, a terminal disclaimer should be filed to those claims in the U.S patent number 5,285,476, which are the same as the ones claimed in this application. The applicants respectfully note that, as evidenced by the enclosed copy of the decision on petition issued on 25 January 1994, the applicants' petition to withdraw the parent application,

serial no. 07/857,980, from issue was granted and abandonment of the parent application in favour of the present application was recognized. Accordingly, the parent application never issued as a patent, even though a patent number had been assigned. The applicants respectfully submit that, since the parent application never issued as a patent, it would be inappropriate to file a terminal disclaimer in the present application.

### III. CONCLUSION

The applicants respectfully request reconsideration of the rejected claims. The applicants believe that the application is now in condition for allowance, and respectfully request such favorable action. If any matters remain outstanding in the application, the Examiner is respectfully invited to telephone the applicants' attorney at (408) 291 5233 so that these matters may be resolved and the application may proceed to issue.

Respectfully submitted,

LIMBACH & LIMBACH

Dated: 15 Nov 94

By: 

Ian Hardcastle  
Reg. No. 34,075

Attorneys for Applicant(s)

November 15, 1994

Atty Docket No. SONY-C2195